

I claim:

- 1           1.     A soft tissue coagulation device, comprising:  
2                 a shaft defining a distal end and including an outer structure  
3                 formed from material that is relatively high in thermally conductivity and  
4                 substantially electrically nonconductive;  
5                 at least one energy transmission device supported on the outer  
6                 structure in spaced relation to the distal end of the shaft; and  
7                 at least one fluid lumen defined by the outer structure and  
8                 located such that a portion thereof is aligned with the at least one energy  
9                 transmission device.
- 1           2.     A device as claimed in claim 1, wherein the shaft is relatively  
2                 short.
- 1           3.     A device as claimed in claim 1, wherein at least a portion of the  
2                 shaft is relatively stiff.
- 1           4.     A device as claimed in claim 3, wherein the shaft includes a  
2                 malleable mandrel and the outer structure is mounted on the malleable  
3                 mandrel.
- 1           5.     A device as claimed in claim 3, wherein the shaft includes a  
2                 tubular member defining a distal end and the outer structure extends distally  
3                 from the distal end of the tubular member.
- 1           6.     A device as claimed in claim 1, wherein the shaft include a  
2                 proximal portion and a distal portion, the device further comprising:  
3                 a steering apparatus that deflects the distal portion relative to  
4                 the proximal portion.
- 1           7.     A device as claimed in claim 1, wherein the shaft includes a pre-  
2                 bent portion.

1           8.     A device as claimed in claim 1, wherein the at least one fluid  
2 lumen comprises an inlet lumen and an outlet lumen.

1           9.     A device as claimed in claim 8, wherein the inlet lumen and the  
2 outlet lumen define respective distal ends, the device further comprising:  
3                 a non-conductive tip member defining a lumen that connects the  
4 distal ends of the inlet lumen and outlet lumen.

1           10.    A device as claimed in claim 1, wherein the at least one fluid  
2 lumen includes inner and outer lumen surfaces defining a distance  
3 therebetween, the outer structure includes a wall defining a wall thickness  
4 between the at least one energy transmission device and the at least one fluid  
5 lumen, and the distance between the inner and outer lumen surfaces is  
6 greater than the wall thickness.

1           11.    A device as claimed in claim 1, wherein the at least one energy  
2 transmission device comprises a plurality of longitudinally spaced energy  
3 transmission devices.

1           12.    A device as claimed in claim 1, wherein the at least one energy  
2 transmission device comprises an electrode.

1           13.    A surgical probe as claimed in claim 1, wherein outer structure  
2 defines a perimeter, the at least one energy transmission device extends  
3 around less than the entire perimeter, the at least one fluid lumen comprises  
4 inlet and outlet lumens, and the inlet lumen is between a substantial portion of  
5 at least one the energy transmission device and the outlet lumen.

1           14.    A surgical probe as claimed in claim 13, wherein the outlet  
2 lumen includes thermal insulation.

1           15.    A soft tissue coagulation device, comprising:  
2                 a shaft defining a distal end and including an outer structure  
3 formed from material that is substantially electrically nonconductive;

4 at least one energy transmission device supported on the outer  
5 structure in spaced relation to the distal end of the shaft; and

6 at least one fluid lumen defined by the outer structure such that  
7 a wall having a wall thickness is between the at least one fluid lumen and the  
8 at least one energy transmission device, located such that a portion thereof is  
9 aligned with the at least one energy transmission device, and including inner  
10 and outer lumen surfaces defining a distance therebetween that is greater  
11 than the wall thickness.

1 16. A device as claimed in claim 15, wherein the shaft is relatively  
2 short.

1 17. A device as claimed in claim 15, wherein at least a portion of the  
2 shaft is relatively stiff.

1 18. A device as claimed in claim 15, wherein the shaft includes a  
2 malleable mandrel and the outer structure is mounted on the malleable  
3 mandrel.

1 19. A device as claimed in claim 15, wherein the shaft includes a  
2 tubular member defining a distal end and the outer structure extends distally  
3 from the distal end of the tubular member.

1 20. A device as claimed in claim 15, wherein the shaft include a  
2 proximal portion and a distal portion, the device further comprising:  
3 a steering apparatus that deflects the distal portion relative to  
4 the proximal portion.

1 21. A device as claimed in claim 15, wherein the shaft includes a  
2 pre-bent portion.

1 22. A device as claimed in claim 15, wherein the at least one fluid  
2 lumen comprises an inlet lumen and an outlet lumen.

1           23.    A device as claimed in claim 22, wherein the inlet lumen and the  
2           outlet lumen define respective distal ends, the device further comprising:  
3                    a non-conductive tip member defining a lumen that connects the  
4           distal ends of the inlet lumen and outlet lumen.

1           24.    A device as claimed in claim 15, wherein the at least one energy  
2           transmission device comprises a plurality of longitudinally spaced energy  
3           transmission devices.

1           25.    A device as claimed in claim 15, wherein the at least one energy  
2           transmission device comprises an electrode.

1           26.    A surgical probe as claimed in claim 15, wherein outer structure  
2           defines a perimeter, the at least one energy transmission device extends  
3           around less than the entire perimeter, the at least one fluid lumen comprises  
4           inlet and outlet lumens, and the inlet lumen is between a substantial portion of  
5           at least one the energy transmission device and the outlet lumen.

1           27.    A surgical probe as claimed in claim 26, wherein the outlet  
2           lumen includes thermal insulation.

1           28.    A surgical probe as claimed in claim 15, wherein the distance  
2           between the inner and outer lumen surfaces is at least two times greater than  
3           the wall thickness.

1           29.    A method of coagulating soft tissue with an apparatus including  
2           an elongate energy transmission device and an inner lumen, comprising the  
3           steps of:

4                    positioning the elongate energy transmission device in electrical  
5           contact with tissue;

6                    transmitting energy to the tissue with the energy transmission  
7           device; and

8                    passing fluid through the inner lumen such that heat is  
9           transferred from the energy transmission device to the fluid.

1           30. A method as claimed in claim 29, wherein the step of positioning  
2           the elongate energy transmission device comprises positioning a plurality of  
3           spaced electrodes in electrical contact with tissue.

1           31. A method as claimed in claim 29, wherein the step of passing  
2 fluid through the inner lumen comprises passing fluid through an inlet lumen  
3 and an outlet lumen.